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Retrolental Fibroplasia*

Algernon B. Reese, M.D., and Frank Payne, M.D.

MEASURES to maintain the health of the expectant mother, to insure the development of full-term babies, and research in the fundamental etiology of congenital anomalies are needed to prevent retrolental fibroplasia, which occurs all too frequently in premature infants.

THE condition currently known as retrolental fibroplasia has been recognized by ophthalmologists since 1851. It has been reported under many other names such as tunica vasculosa lentis, and persistence and proliferation of the primary vitreous. Attention has been drawn to this anomaly recently because it has been encountered more frequently during the past ten years; this is due to the decreased mortality rate of premature infants in whom the lesion is more common.

During the development of the fetus in the uterus a tissue known as the "primary vitreous" extends, inside the eyeball, from the optic nerve head to the back surface of the crystalline lens. Normally this vascular tissue begins to disappear shortly before birth, and has completely disappeared during the first few years of life. For causes yet unknown this tissue may not disappear in some infants but remains as an opaque tissue back of the lens. Further changes occur in the fibrous nature of this primary vitreous, leading to various clinical appearances of the defect. The term retrolental fibroplasia means "development of fibrous tissue in back of the lens."

Although many factors have been investigated, the specific cause of this fibroplasia is not known. Some authorities believe this is a developmental anomaly; that is, it develops during the first few weeks or months after the baby is born. Others believe it is a con-

* The intensive studies by Dr. T. L. Terry should be consulted if one desires a detailed knowledge of the subject.

genital anomaly; that is, it is present at the time of birth. Perhaps the lesion is present at birth in some infants, and develops later in others.

The lesion can occur in either full-term or in premature infants. In full-term infants it is usually present in only one eye, whereas in premature infants it is usually present in both eyes. A premature baby, by medical definition, is one whose birth weight is less than five pounds, irrespective of the duration of the gestation. Thus, a baby born at the end of a nine months' gestation is considered premature if it weighs less than five pounds; and a baby born at the end of seven months is a full-term baby if it weighs over five pounds.

The hereditary aspects are not completely known, but there seems to be no particular tendency for other children of the same parents to be similarly affected. In the case of twins, however, the lesion is likely to be present in both infants. In the unilateral cases, if the good eye remains normal during the first few months of life it will continue to remain normal throughout life.

Although there are many variations and appearances of this tissue it is convenient to divide the clinical manifestations into four types, as follows:

Type I.—This is the commonest. A concave, saucer-shaped, whitish, opaque tissue is seen against the back surface of the lens. The lens may be clear throughout but usually there are cataractous changes in its posterior layers. With the ophthalmoscope the red fundus reflex can be seen through the periphery of the lens. Long ciliary processes extend from the ciliary body to the equator of the lens; they appear as black processes against the red background of the fundus reflex, and when observed are pathognomonic of this condition.

Type II.—This is characterized by an opacity of the cornea, densest in the central portion, and thinning toward the periphery. The corneal epithelium is stippled. The anterior chamber is shallow or absent, and glaucoma is present.

Type I can change over into Type II; the pathogenesis is probably thus: The contraction of the tissue in back of the lens pushes the lens and iris forward until the iris-lens diaphragm touches the posterior surface of the cornea. This interferes with the imperme-

ability of the endothelium of the cornea, permitting aqueous to enter the corneal stroma, which leads to the opacification. Coincidentally, the filtration angle of the anterior chamber is obliterated and glaucoma develops. The opacity of the cornea prevents an accurate view of the interior of the eye, thus obscuring the diagnosis of retrolental fibroplasia unless the examiner is alert to suspect it as the underlying cause of the opacity.

Type III.—This is a localized mass of opaque tissue on the posterior surface of the lens; the tissue often extends posteriorly as a strand which has caused a detachment of the retina.

Type IV.—This includes cases in which the central portion of the original hyaloid system of blood vessels or some portion of it persists, with little or no retrolental tissue.

Unless an ophthalmoscopic examination is made upon the newborn infant, the diagnosis of any type of this lesion is usually not established until the baby is several months of age. At that time the attention of the parents is attracted to the child because of the gray color of the pupil, or because the child behaves as if he did not see. For all practical purposes an eye with this defect is blind. In some cases it appears that the child recognizes a light. The eye is a cosmetic blemish due to features such as its smaller size, cataractous lens, or opaque cornea.

It is extremely important to make an accurate differential diagnosis of this anomaly because Type I may easily be confused with retinoblastoma. Retrolental fibroplasia does not cause death and does not demand enucleation of the eye; but retinoblastoma is a malignant type of cancer which invariably kills the child unless the eye is enucleated or treated by X-rays in its early stages. Type II must be differentiated from congenital glaucoma. Type III can be mistaken for massive retinal fibrosis of children secondary to intraocular hemorrhage at birth. Other congenital anomalies such as heart defects, mental retardation, spinal deformities, and so on, often occur in association with retrolental fibroplasia.

Treatment is not very effective. A number of attempts to salvage vision have been made by operating upon eyes possessing normal intraocular pressure and a clear cornea. The operations consist of repeated needlings of the lens to effect the removal of the lens substance; several weeks following this, a vertical in-

cision is made in the remaining fibrous membrane so that light may enter the interior of the eye and stimulate the retina. The final results of surgery cannot be evaluated at this age, but must await the time when the patient is old enough to be examined for the presence of vision.

If glaucoma develops, as in Type II, an operation must be performed to reduce the increased intraocular pressure.

From the knowledge available at present concerning this rather hopeless condition it appears that its prevention rests with the obstetricians rather than the ophthalmologists. Measures to maintain the health of the mother throughout her pregnancy, to insure the development of full-term infants, and research in the elucidation of the fundamental etiology of congenital anomalies, are the lines along which attention must be directed. Once the lesion is present, the ophthalmologist, as yet, has very little to offer.

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Creative Writing

Glenn Ward

THE sight-saving class teacher, especially, will find inspiration in the author's discourse on how the creative instincts of school children can be stimulated and utilized in the education of the child without taxing his eyesight.

TO those of us who work and live with children in a school environment there come rare and beautiful moments: Anne saying: "I am so happy, this is the way I feel," and taking a hoop in both hands stretches as high as she can—head up, muscles taut, whirling herself around—sudden relaxation of body and, with a swift downward movement of hoop, she runs away; the rapt expression of a child modeling in clay; or the conversation of two boys—one explaining the "mechanism" of an airplane he is making; or the sheer beauty of body movement as a child says, "This is the way the water moves in that music you played this morning"; or the staccato tapping of a pencil and a child chanting the rhythm; or the bold statement of Barbara Jean who says, "I am a gypsy," and takes the tambourine and dances wildly to Brahms' *Hungarian Dance* to prove it; or of Harvey who smells the soup from the cafeteria and chants, as he walks in the hall:

"I smell soup, soup, soup, soup,
Good old soup.
I wish I had some money
So I could buy me some soup.
Soup, soup, soup,
Good old soup."

Or of Barbara who said,

"Wait a minute, Miss Ward, there's a poem coming into my head," and she quotes:

"Chukker, chukker, chukker
See the cars rolling along
Singing a little song.
Chukker, chukker, chukker."

Or a child painting at the easel—the list is without end.

What are these moments rare and beautiful? What significance do they have for us who emphasize the conservation of sight? What insight do they give us into these children's lives? These manifestations are glimpses into the child's creative being; these possibilities can form the background for our structural planning; they can be an insight into his personal life; and they can be one of the criteria for program building. Hughes Mearns calls it the creative spirit, and says "Outwardly it is harmony—a concentration upon the object of desire that sets the world aside,"* and "that which makes it different from formal instruction is that the urge to do is self-engendered; it seeks its own way to fulfillment; it is not stopped by time or space or apparatus."

With this thought in mind, I shall attempt to plan a school environment which will touch and set in motion the inner springs of a child's creative powers; an environment that will allow and help him fashion his ideas into tangible, visible expression; perhaps a foundation for his leisure-time activities. There is no need for elaborate equipment, for elaborate equipment will stifle and choke him; there is no need for gadgets or tricks that will do his thinking for him, for these will hinder his creative thinking; there is no place for reproductions and patterns, for these do not foster creativity. What the partially seeing child needs are the common, simple things of any school—paints, paper, brushes, water and an easel to paint on; wood, nails, tools and a bench for working; musical instruments for composing tunes or playing those already learned; clay for modeling; boxes, barrels, cardboard, string, cloth, newspaper—things that have many and varied uses. All these the child needs to work with; but he also needs a place to work—a place not too close to other people; and last of all a child needs a place to preserve his work. If it is a painting, it will need to be hung; if a story, it will need to be kept for enjoying and sharing with others.

* Mearns, Hughes, CREATIVE YOUTH, p. 14, edited by Progressive Education Association, Milwaukee, E. M. Hale, 1939.

Beside a physical environment, the school program must offer the child awareness of and a broadening appreciation for the culture in which he lives. He must dig down into the past and learn of man and how he solved the problems that confronted him; he must examine the present and see what is good; and he must dip into the future.

Why, you ask, all this talk of the past and future when we are concerned with the here and now of creativity. Dr. Kilpatrick says, "What counts for most is what we do actively by reaction or, better still, by creative initiative. Experience, fully considered, has both a passive and an active side. Both are necessary. Both teach us. But it is in the active that we reach our highest living."* This, then, is an environment fostering creativity—an environment that will help a child emerge from the culture in which he lives with something that is new and very personal to him. His "creation" will be colored with the darkness of the past, with the challenge of the present, and with the hope of the future, but it will be a child's own. Take it, you to whom it is offered, and do not alter one word of it. But this expression must not be left to die, for that would be the end of the child's creative attempts. So, take whatever is offered and build upon it until there are evidences of self-growth and a feeling of power. "This, then, is the torrential force that comes unbidden out of the mysterious recesses of personality and fashions things out of wood, color, fabric, clay and words; the thing that dances, sings, and leads a dozen dramatic reincarnations," writes Mearns.†

Is this a sensible program of environment for a child to live in? What is happening to the child who lives and works under these conditions? Will he learn to live effectively as a member of a group? Will he contribute his uniqueness to the group and at the same time develop an awareness of other members? Will he find here the disciplines that will make him a good citizen of his school, his home and community, his country and even of the world? Will he develop a set of values, and learn the pattern of democracy? What is happening here? Mearns continues, "Character emerges, personality develops, confidence is gained—these are the tools of education. New hungers arise, new desires, new satisfactions and these are the

* Kilpatrick, William H., EDUCATION for CHANGING CIVILIZATION, p. 114.

† Mearns, Hughes, CREATIVE EXPRESSION, pp. 17 and 18, edited by Prog. Ed. Asso., Milwaukee, E. M. Hale, 1939.

very food of education. The cultivation of the creative spirit makes for great artists, giant thinkers and scholars; it is the recipe for distinction."

Who is responsible for this environment, for this living so richly, so genuinely, so fully? The answer is very trite—the teacher. What kind of teacher? She has been defined as an artist-teacher. Not one who paints, or sings or plays the piano, or who is even skilled in the crafts—although these accomplishments and skills would be an asset. She must have appreciations of people, of books, of music, of art, of literature, and of human values. George Herbert Palmer says, "The teacher should have an aptitude for vicariousness, an already accumulated wealth, an ability to invigorate life through knowledge, and a readiness to be forgotten. She needs a personal and professional philosophy that does more than pay lip service to her profession and her plan for daily living. She needs a credo that says, 'I believe' . . . and states clearly her beliefs in and her standards for living."*

This is a total picture of the background for creativity—the child, the teacher and the school. In most schools the progress of the child is measured in terms of success in reading, writing and arithmetic, in spite of any special talents he may develop. However, the partially seeing child must be led away from these tool subjects—except the use of the essentials required in this competitive world. The partially seeing child who would read for pleasure and leisure must be given another medium for enjoyment. There are many possibilities for him: (1) Art—painting, finger painting, and crayon and chalk drawing; (2) Music—composing tunes, playing tunes, singing, listening, and interpreting; and (3) Literature—storytelling, listening to storytelling, poetry appreciation, composing stories, telling original stories, and writing original stories and poetry.

These are but a few of the possibilities. The writing of stories, poems, or songs is a nice choice for any child's leisure, and for the partially seeing it is well suited. The pleasure a child can get from sharing his writing, together with the release of his inborn power to make a word picture, can be a substitute for his desire to read. In composing a story he does not need to use his eyes.

How can a child be led to compose a story? There certainly is no magic art in it. You simply sit down with the children and let

* Palmer, G. H., THE IDEAL TEACHER, N. Y., Houghton Mifflin Co., 1910.

them talk, and wait for one of those rare and beautiful moments to come. Simple, isn't it? But it is not quite so simple as that. A child must, first of all, have something to tell—his first efforts may be a simple statement of ownership such as, "This is my new raincoat." He must have adequate words to express himself; he must tell the story out of his own experience; and in a succession of events, he must express them in logical order. The teacher must ever be watchful of the time to encourage and to inspire, but she must keep her hands off, lest she spoil it with her adult interpretations, and judge it by adult standards.

After the child has a freedom in his speech, the teacher may suggest conversation, feeling, and personal reaction by such a remark as, "If the people talked what would they say?" or "How does it make you feel?" By the same method, form, element of surprise, and conclusion—all essential elements of story writing—form, pattern, rhythm, and description—elements of good poetry—can be developed. One fine day a child will come to you with a story "out of the blue"—the child's imagination will have been caught and harnessed into creative expression.

May I offer you a few things from my collection of poetry?

1. Imagination

MY KITE

My kite is very big you see
It flies so very high
It can't come down 'til the wind comes down
And, then, it comes down to me.

PATRICIA—6½ years old

2. Sound

WALKING TO SCHOOL IN THE SNOW

Walking to school in the snow
Crunch, crunch, crunch, crunch
Walking to school in the snow
Slip, slip, slip, slip
Walking to school in the snow
Crunch, crunch
Slip, slip
Crunch, crunch, slip—oh! oh!
Walking to school in the snow.

BARBARA ANN—7 years old

3. Nonsense

IF

If all the snow were ice cream
And all the ground were cake
And all the icicles sticks of candy—
What would you do?

If all the snow were ice cream
And all the ground were cake
And all the icicles sticks of candy—
I'd eat and eat and eat.

GROUP

THE LOST KITTY

Kitty, kitty, kitty cat,
Has anybody seen my kitty?
She's black,
She's white,
She's cute
And my delight
Has anybody seen my kitty?
Kitty, kitty, kitty cat.

CAROL—6½ years old

Following are some stories from my collection:

1. A Surprise (very early story):

Yesterday I went down to Brown-Rogers-Dixon. I was looking at the toys when someone said, "Hello, there, fellow." I turned around and there sat—Santa Claus!

NEVYN—6 years old

2. A personal experience with development of form and pattern of expression:

THE BIRD'S NEST

Last summer I saw a bird's nest in a tree behind our garage.
I peeped in the nest—four blue eggs.
I peeped in the nest again—four baby birds.
The baby birds put up their heads.
They thought I had some food, but no—
I had no food.

So the baby birds put their heads down.
Then, one day I peeped in the nest again
No baby birds!
So, I took the bird's nest and put it in my room in my collection.
And that's what I really did last summer.

HILTON—7 years old

3. Imagination (did not happen) and nonsense:

A FUNNY MOUSE

One night I saw a little mouse run across the living room floor.
"Look, Mother," I said, "there's a mouse!"
Freddy, my little brother, had dropped some of his jam sandwich and that's what the little mouse wanted.
My mother is afraid of mice, so the next day she borrowed a mousetrap. After supper, Daddy and I put some cheese in the trap, and then we went to bed. I could not go to sleep, so I listened and listened—and then I heard something!
"Ee——ee——ee——eek," it said.
I jumped out of bed, went into Daddy's room,
"Daddy, Daddy, wake up!
We caught a mouse."
So Daddy got up—I didn't dare turn on the light!
We went into the kitchen and when we turned on the kitchen light,
There sat Freddy with his hand in the mousetrap.

The End—

PETEY—7 years old

I have tried to show you the necessary media for the creative possibilities in children. These same possibilities are inherent in us all—when you make a dress and either add to or take away from the basic pattern in a way to make that dress your own individual dress—you have created something. Sometimes our "creations" are funny, sometimes they are good, but good or bad they are always fun. The other day I bought a pamphlet called *It's Fun To Make a Hat*, and from the directions and descriptions I'm sure it must be. Our art galleries and our libraries are filled with the creative efforts of those especially talented and gifted. Robert Browning, in *Andrea*

del Sarto, Called "the Faultless Painter," has immortalized a description of creative genius:

> "Yonder's a work now, of that famous youth
> The Urbinate who died five years ago.
> ('Tis copied, George Vasari sent it me.)
> Well, I can fancy how he did it all,
> Pouring his soul, with kings and popes to see,
> Reaching, that heaven might so replenish him,
> Above and through his art—for it gives way;
> That arm is wrongly put—and there again—
> A fault to pardon in the drawing's lines,
> Its body, so to speak: its soul is right,
> He means right,—that, a child may understand."

Congenital Cataract Following "German" Measles in Pregnancy

Charles A. Perera, M.D.

THE author points out that when a virus infection such as measles attacks a woman early in pregnancy, it may also attack the tissues of her unborn child at a time when they are especially vulnerable to virus assault.

IN 1942, Gregg[1] in Australia reported that congenital malformations—cataract, heart abnormalities, mental retardation, deaf-mutism, or other defects—were occurring in infants whose mothers had had "German" measles early in pregnancy.

In the following year, Swan and a group of his colleagues[2] confirmed these findings in a survey supported by the National Health and Medical Research Council of Australia. In the United States, Reese[3] called the attention of American physicians to the Australian reports and described three cases from his practice. Since then, a number of additional reports have appeared in the American and British literature, confirming the association between congenital defects in the infant and measles in the mother.

It is evident that these findings are more than a coincidence, and that the diagnosis of rubella (German measles) in a woman during the first three months of her pregnancy may indicate liability of her child to the development of congenital cataract and other abnormalities.

The cataract to which reference is made may occur in one or both eyes of the newborn infant, and be noticed first by the attending physician or a parent. In some cases there is noted the appearance of a white or gray pupil in one or both eyes; in other instances it becomes apparent that the growing infant has eyes which wander or jerk around, unable to see details. Cataract means cloudiness or

opacification of the lens, which is situated just behind the pupil and colored part of the eye. The back portion of the eye in these cases is relatively normal and may be able to perceive light or objects dimly.

Treatment of congenital cataract in infants depends on whether it is present in both eyes and on how much it interferes with sight. In examples which require surgical treatment after consulting with an eye physician, the simple operation of needling is performed on one or more occasions. In this operation, usually done under general anesthesia, a fine needle or knife is passed into the eye and the lens cut. The lens material swells up and slowly absorbs; sometimes it is washed out of the eye by the surgeon. The opacity in rubella cataract is usually located in the central part of the lens, where vision is most affected. If both eyes are involved, the child must wear glasses after the operation to obtain useful vision. If one eye is cataractous, the use of a practice glass may be advised after the needling operation.

Of course, the presence of heart trouble, mental retardation, feeding difficulties or deaf-mutism must be taken into account and treated in accordance with the advice of the family doctor or children's specialist (pediatrician).

German measles belongs to the group of virus diseases—mumps, true measles, and chickenpox. When a virus infection attacks a woman early in pregnancy, it may also attack the tissues of her unborn child at a time when they are actively developing, and when they are especially vulnerable to virus assault. The eye and heart tissues of the fetus are passing through their critical growth stages during the period between the third and eighth weeks after conception. It seems likely that other virus diseases may also affect the unborn child, but rubella attacks young adults more commonly than the other infectious fevers.

This subject deserves more study and research in order to clarify certain issues regarding preventive and therapeutic measures. Perhaps virus infections in the mother are important as factors which cripple or kill the fetus in the womb. There may be real grounds for deliberately exposing young girls to rubella so as to make them immune in later life and prevent damage to one of their future children. Many writers are convinced that German measles in early

pregnancy calls for a therapeutic abortion to prevent the birth of a living child doomed to malformed tissues. This procedure must depend on more research and on the joint consultation of the pediatrician, the eye physician, and the involved parents.

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Good Eyesight is Our Birthright*

F. L. P. Koch, M.D.

STRESSES the responsibility of parents and teachers as well as doctors for the early care of eye difficulties in childhood.

THE mere possession of eyes as a part of our biological heritage at birth is not in itself sufficient to assure good vision throughout life. It is most important that the ocular function we call eyesight be developed and maintained with efficiency from the date of birth. Carrying out this program for each individual child is a privileged duty accorded primarily and initially to parents who, in cooperation with eye physicians, teachers and interested community agencies, can assure maximum utilization of vision during the formative years prior to adulthood after which the individual presumably must rely on his own judgment and experience in the care and use of his eyes.

The high total of rejections because of ocular defects, on examination for military service, as shown by the recent national statistics on the physical fitness of the youth of America, would imply that the care of the eyes of these individuals and, for that matter, of the general population, had been deficient. However, analysis of the figures and findings indicates that there has been no essential change in ocular problems in this country during the past forty years. Thus, there actually has been no marked degeneration of the eyes of the population as a group, but the figures do present a real challenge to all of us to make a concerted, continual effort to reduce the high percentage of eyes that are defective and, thus, to increase proportionately the number that are efficiently useful.

The question may be asked: Are these defects due to lack of

* Radio talk over Station WNYC, December 28, 1945, under the auspices of the New York Academy of Medicine and the New York Tuberculosis and Health Association, Inc.

adequate medical care, to faulty parenthood, to faulty nutrition, or can they be expected to occur normally in any large population group of individuals?

It is impossible to give a satisfactory answer to each part of this question but, in my opinion, eye physicians and their associates, as individuals, attempt to be unremittingly diligent in their efforts to have everyone enjoy excellent eyesight and eye health. As a group, however, we are seldom invited to give our collective opinion on local or national eye health educational matters. Thus, our efforts necessarily tend to be individualized, more often than not, when dealing with eyeglass requirements and with medical and surgical diseases of the eyes in persons of all ages. And this is only proper, since these requirements vary from person to person and from time to time. But coordination of effort in care of the eyes of children of preschool age should be the responsibility of those who are qualified by training, intelligent interest, and by virtue of parenthood.

Theoretically, it would be desirable to endow our unborn children with perfect eyes but, since we practice democratic principles in a democratic country, youth itself decides whom it will marry and who will be the father and mother of its children and, thus, determines the heredity of the offspring. It is only by education, then, that there can be intelligent control over the process of natural selection. Therefore, knowledge might supplement, but not supplant, emotion in the matter of marriage and, consequently, in the biological endowment of the children.

We are all aware, in general, that uniformly healthy children do not result from intermarriage between close relations, and that social or venereal diseases in parents produce permanent defects in eyes and other organs of the offspring which will handicap them for life. Prospective parents in good health can reasonably expect to have healthy children and they may be further assured of this if they come from normally healthy families.

It has been shown recently that healthy expectant mothers who have an excellent diet and regular prenatal care during pregnancy have babies of better than average healthiness but, in contrast, mothers who are poorly fed and have little or no prenatal care have inferior children who have such serious defects as congenital cataracts, underdeveloped eye tissues, congenital inflammations of the

eyes, feeblemindedness, cleft palates, congenital heart trouble, and many other permanent handicaps. We all know of the strange food desires some expectant mothers have, but it actually means that something of real importance is lacking in the diet, and indicates the need for a careful checkup. There is no point in limiting the amount of food the expectant mother wishes because it will have little influence on the size of the baby. It is the quality of the baby, not the quantity in pounds and ounces, that counts, and proper eating by the mother will develop quality. Today, only in the United States can the expectant mother have the proper food and care. It is this country's great good fortune that we have the opportunity to produce and maintain an increasingly higher level of health in our population and in each new member that is born.

Since the qualified eye physician, in his examination and interpretation of his findings, can offer a more objective point of view and opinion than the parent can, his rôle is most important in the intelligent guidance and early treatment of those with defective vision. It is well known that there are many psychological and physical inequalities in nature because nature constantly builds to a pattern but not necessarily a perfect one. It is up to the physician and his assistants, therefore, to seek to perfect and to improve by all available means the status, not only of the individual body organs, but also of the individual as a whole in order to equip him to develop into as useful a citizen as possible.

Cooperation of the informed parents is necessary in this endeavor. Not always borne in mind is the well-known fact that the early education and development of a child involve practically all visual functions. If these are not potentially adequate at birth, substandard or abnormal vision habits may be formed that will cause certain psychological trends to occur which will interfere with or alter his future education and his character. When the immediate novelty of having the new baby begins to wear off, the adults who see the baby every day frequently fail to observe the little daily changes of physical and mental development. Visitors who come in only occasionally are more likely to notice these differences but they are more likely to mention only the flattering ones.

The parents, of course, will observe obvious infections or tearing of the eyes if these should occur and the doctor will be asked for

treatment. Irregularity of eye movements probably will be seen quite readily during the first few months or so of life since it is quite common during that time. But it is much more difficult for the untrained observer to detect the presence of serious defects in vision or in eye tissues unless the eyes are outwardly and grossly affected or if the baby does not seem to respond at all to light or to follow objects with his eyes. However, the baby's doctor will detect the existence of such defects if they are present and bring them to the attention of the parent and of the eye physician for diagnosis and correction.

The detection of limitations in vision is of great importance but it is not likely to be examined into until the child is of school age and, by that time, whatever poor seeing habits he may have formed frequently are difficult to alter for the better. The great majority of us are born with a farsighted seeing apparatus which, together with the tremendous focusing power our eyes have in our formative years, permits us to see into the distance as well as very close to us. This provision of nature is a good one because we otherwise would not be able to utilize our short arms for holding things we wished to see in detail. But no two eyes are identical in their ability to function and, as a result, the seeing ability of one eye may develop more than that of the other and without the individual's becoming aware of it. This situation of unequal function, however, may even result in a crossing of the eyes and, of course, then will be noticed by others.

If the child, during his growing years, has headaches related to his eyes but seems normal in other respects, and does not seem to care for reading or for sustained play activities which require holding things within the range of his arms' reach, it is probable that his farsightedness and focusing ability require examination and treatment. If distance vision seems faulty and near vision is good, whether with or without headaches, he may be nearsighted. The correction and treatment of these conditions most frequently are accomplished with properly prescribed glasses after adequate examination which usually cannot be done without the use of appropriate eye drops. It is not only desirable but usually necessary, therefore, that every child undergo a complete eye examination before he arrives at the reading age, or earlier, and that these find-

ings be made as integral a part of his school record as his grades are.

Visual education and the coordinated development of personality and the use of our neuromuscular and mental faculties generally are related more to mental age than to physical age. However, if a child is unready to begin his formal education, the psychological upheaval may be tremendous. This unreadiness may be due to a great variety of causes, some of which might be corrected by the wearing of glasses, by indicated eye muscle exercises, or by the surgical straightening of eye muscles. So many children who require glasses now wear them that ridicule by their playmates is not nearly so common as it was in the school days of their parents. Eye muscle exercises are no cure-all but frequently are a valuable treatment aid when functional disturbances of eye muscles interfere with simultaneous vision and movement of both eyes together. Certain conditions require certain types of exercises and should not be advised except by an eye physician after examination. The exercises should be carried out by properly certified technicians, under the physician's supervision.

The child who is cross-eyed usually is the object of ridicule and of derogatory remarks by his playmates, and this manifestation of the psychology of children probably will not improve, since the most outspoken period of one's life is childhood. Unstraightened eye muscles and the remarks they engender may and do cause manifestations of inferiority with subsequent timidity or belligerency. And there may develop a sense of aloneness and poor communal spirit that may even lead to more or less serious types of juvenile delinquency.

Parental indifference to preschool educational requirements of their children, although those children may have the most excellent of measurable vision according to testing charts, still may result in the child's growing into an indifferent and inaccurate observer unless individual instruction during the early years of original developmental seeing effort is instituted to insure that the child truly recognizes what he sees. Early efforts along these lines are worth years of later retraining and remedial reading. This is particularly true of children with nearsight or with moderate to severe degrees of farsight whether with or without astigmatism who, unless the corrective glasses are furnished at an appropriate early age, will

tend to view objects hazily and come to rely more on the so-called visual memory than on optical accuracy of outline.

It is exceedingly important that all among those of us who are interested, for whatever reason, in the attainment of the best possible vision constantly must bear in mind that, although perfection is not always obtainable, never has the demand for perfection been so great. This demand undoubtedly will not decrease. Each new year and each new generation, as in the past, will require more of its youth, and youth deserves, of those of us who are qualified, every bit of everything that we can give it of our aid and our experience to equip it with the utmost possible of general and special fitness. This can be more readily accomplished if integration of effort be directed toward evolvement of the most efficient use of the eyes possessed by each individual as his birthright.

The Campaign Against Blindness in Egypt*

Hassan Barrada Bey, M.D.

THIS exhaustive study presents an historical review, statistics, recent advances, and the campaign against blindness in Egypt.

Historical Review

Egypt has been regarded as the historic birthplace and cradle of ophthalmia, and, in discussing the history of ophthalmology in Egypt, we must state outright that every reference to eye diseases in old literature applies to any inflammatory condition of the conjunctiva which could embrace all the recently elucidated types of acute, chronic, and trachomatous conjunctivitis. It is only through sifting and thorough study of detailed descriptions that we can deduce the type of entity known today which can be compared with those seen of old. For example, in the oldest book on medicine, known as Eber's papyrus, which was written during the height of Egyptian civilization, a thousand years before Hippocrates (Fifth Century B.C.), prescriptions were given for a disease of the eye which was called (*hatae m Mrt*) *i.e.*, "bleary or watery eye." This condition is described as inflammations of the eye with roughness in the lids, with a continuous discharge. This description tallies with trachoma as we now know it.

Koch, while in Egypt in 1883, found in the conjunctival discharges two different kinds of microorganisms: the gonococcus and a bacillus which was later termed Koch-Weeks bacillus. This and other fundamental observations resulted in classifying ophthalmia in Egypt into two major divisions: (a) a chronic endemic disease, *i.e.*, trachoma; and (b) an acute regularly seasonal epidemic, *i.e.*, purulent ophthalmia, against which Egypt has instituted a broad campaign.

* Abstract from an article, "Blindness in Egypt—Historical, Statistical, and Recent Campaign," prepared by the author especially for presentation at the 1946 Conference of the National Society for the Prevention of Blindness.

Egypt in those ancient days was a highly cultured country, and its inhabitants were regarded as a clean and healthy people. Even Herodotus (484–425 B.C.) praised the great cleanliness of the Egyptian people and recommended Egypt as a health resort for the Romans. It is only later, through the decline and fall of Egypt, that the ophthalmias gained footing and gradually became endemic and finally pandemic. These years coincide with the period in which Egypt fell to its lowest scale in civilization. It is obvious, therefore, that the curve of ophthalmias was rising steadily through the ages as the curve of Egyptian civilization was relatively dropping.

It will be shown later that in recent years, as Egypt was rising again in the scale of civilization and social hygiene, the curve of the scourge of ophthalmias was accordingly falling.

Statistics

Ophthalmias.—It is an astonishing fact in ophthalmic practice in Egypt that ophthalmia neonatorum is almost completely absent, the reason being very difficult to explain. It may be stated that the incidence of the gonococcus in the vaginae of mothers attending the maternity centers in Egypt is not much less than is recorded in other countries, but it has been shown that there is a slight difference between the gonococcus of venereal origin and the ophthalmic type—the latter being not so antigenically complex as the first.

BLINDNESS* FROM OPHTHALMIAS AMONG PATIENTS, FROM 1909 TO 1944

Year	*Total Number of Patients Examined*	*One Eye*		*Both Eyes*		*Total*	
		Number	*Per-cent-age*	*Number*	*Per-cent-age*	*Number*	*Per-cent-age*
1909	22,372	2,116	9.4	1,385	6.1	3,501	15.6
1924	206,342	16,535	8.0	5,716	2.8	22,251	10.8
1934	944,871	47,122	5.0	11,371	1.2	58,493	6.2
1944	1,303,249	40,842	3.1	9,632	0.7	50,474	3.9

* The definition of blindness adopted here is inability to count fingers held up at a distance of one meter.

As a result of investigation it was shown that not one child over one year had a healthy conjunctiva. The criterion of the damage

done by the ophthalmias is the incidence of blindness through corneal ulcerations and their sequelae, especially corneal opacities, phthisis bulbi, and secondary glaucoma.

Acute ophthalmias represent 82 per cent of the causes of blindness. The gonococcus is still the predominant etiological factor in acute ophthalmias.

CAUSES OF BLINDNESS

	Number	*Percentage*
A.—Congenital	17	
B.—Acquired:		
1. Conjunctivitis resulting in:		
(a) Total corneal opacity	14,895	
(b) Shrunken globe	17,796	
(c) Secondary glaucoma	7,352	
(d) Other conditions	1,873	
		82.0
2. Fundus:		
(a) Optic atrophy	174	
(b) Optic neuritis	31	
(c) Retinitis pigmentosa	25	
(d) Detachment of retina	117	
(e) Other diseases of fundus	96	
		.9
3. Glaucoma:		
(1) Primary:		
(a) Monocular	1,239	
(b) Binocular	775	
(2) Absolute:		
(a) Monocular	1,586	
(b) Binocular	923	
		8.6
4. Cataract	2,706	5.3
5. Injury	233	.4
6. Operations	60	.1
7. Infectious diseases	12	.02
8. Iritis (endogenous)	505	17.0
9. Various	824	1.6
Total	51,239	

Unfortunately, in Egypt, this enormous number of blind folks do not receive enough care. In ancient Egypt it was the custom to

teach the blind to be musicians, especially playing the flute, a fact which is inscribed on a wall of one of the temples. A similar practice is still in effect in modern Egypt. Blind children, in the majority of cases, are taught to learn the Koran by heart, and gain their livelihood by recitations in religious meetings. Many of them are also admitted to the old Al-Azhar University, where the science taught is mostly lingual and literal.

Recently, the Egyptian Society for the Protection of the Blind was founded for their benefit and to teach the blind useful manual professions. The principal effort of the State is directed toward the prevention of blindness by combating the prevalent eye disease. The Government Ophthalmic Hospitals' maintenance for this purpose was £E185,000 for the year 1945. Moreover, other centers are working along these lines in medical sections not coming under the Ministry of Public Health.

INCIDENCE* OF BLINDNESS AS SHOWN IN THE 1907, 1917, 1927, 1937 CENSUS

Year	*Population*	*Blind in Both Eyes*	*Percentage*	*Blind in One Eye*	*Percentage*
1907	11,189,978	148,380	1.3	363,702	3.3
1917	12,718,255	154,329	1.2	397,595	3.2
1927	14,177,864	109,934	.8	266,555	1.9
1937	15,920,694	86,727	.5	160,881	1.0

* These numbers may probably be smaller than actually are blind, owing to the fact that many of the people refuse to declare their infirmities.

Recent Advances

One can readily see from the figures relating to blindness in Egypt that a great amount of it may be and can be prevented. This task, along with an intensive campaign of treatment for eradication of acute ophthalmias in Egypt, is being magnificently carried out by the ophthalmic section of the Ministry of Public Health. This section is taking the responsibility for the principal propaganda for social ophthalmic hygiene.

Owing to the unfailing effort of ophthalmic centers in Egypt, great strides in the etiology, endemiology and epidemiology of both trachoma and acute ophthalmia have been effected. They all bear

on the social welfare of the country, and therefore a short record will not be out of place.

Trachoma.—From clinical and experimental observations there is no doubt that trachoma is a specific infectious disease and any theory which attributes the cause to a lymphatic dyscrasia, nutritional deficiency, or similar concept is to be utterly rejected. Seemingly conclusive results and theories published abroad, as to the trachoma virus, were tested and proved fallacious, *i.e.*, Busacca's theory of rickettsia and Noguchi's bacillus granulosis.

There can be no doubt now, for all the evidence goes to prove it, that trachoma is caused by a filterable virus and that the specific infectious agent is demonstrable as an intracellular inclusion body identical with the chlamydozoa, originally described by Prowazek and Halberstaedter. It is true that these inclusion bodies cannot be demonstrated in the epithelial scrapings of advanced cases of trachoma in more than 40 per cent of cases, but they proved to be demonstrable in 100 per cent of incipient cases of trachoma, especially in children. It may be remembered that among the fellaheen (peasants) trachoma is invariably manifest before the child is a year old. In this connection, it is to be observed that inclusions may be found in the trachomatous conjunctival epithelium some appreciable time before even characteristic clinical signs appear in the tarsal conjunctiva. The all-important fact to remember is that these inclusion bodies rapidly begin to decrease in number and it may be difficult to demonstrate them after the first three months of onset of disease. Therefore, while the demonstration of the inclusions in the earliest stages of any doubtful case is of the utmost significance, their absence in the later stages is, from the diagnostic point of view, of little or no importance.

In the exhaustive research work among the village populations of Egypt it was shown beyond doubt that all the young children who developed trachoma had a Koch-Weeks conjunctivitis before the trachoma appeared. Such an attack was either an acute Koch-Weeks conjunctivitis or a mild, persistent one. The usual interval which elapsed between the onset of an acute mucopurulent conjunctivitis and the first clinical signs of trachoma varied from six to twelve weeks. The cause of such variation is undoubtedly due to the fact that in some cases the Koch-Weeks infection persists and

obscures the early clinical signs of trachoma in the tarsal conjunctiva. These observations bear very closely on the method of propagation of trachoma which is pandemic in Egypt. We are left with no doubt that the virus of trachoma is carried along from eye to eye at the same time as the acute bacterial infection, and that the agents which are responsible for the epidemics of acute conjunctivitis are also the principal factors in the dissemination of trachoma, the profuse discharge of acute conjunctivitis being loaded also with the trachoma virus-free bodies.

This shows how the endemicity and pandemicity of both types of ophthalmia in Egypt are interwoven and how the pandemic condition of trachoma is kept flourishing all over Egypt by the regular yearly epidemics of acute ophthalmia. All social and hygienic measures directed against acute ophthalmia and its devastating blindness will operate automatically at the same time against the other serious cause of blindness in Egypt, namely, trachoma.

Acute Ophthalmia.—It has been shown that among the peasants of Egypt (90 per cent of the population), few children pass their first year of life without an acute attack of ophthalmia, and certainly none reaches his second year without it. It is not at all uncommon, in fact it is almost the rule, for a child to have repeated attacks even in the first year of his life. Such cases are almost always due to Koch-Weeks bacillus, as it has an age infection much earlier than the gonococcus and is capable of persisting in the conjunctiva of such children, producing chronic catarrh in which the discharge always shows hosts of Koch-Weeks bacilli.

It is shown, therefore, that acute ophthalmias are really endemic in Egypt. The principal factor of propagation has been shown by Wilson to be the fly, a fact which is most important from the preventive point of view. These ophthalmias assume regular yearly outbreaks of epidemic character, which have been described for years by ophthalmologists and travelers who visited the shores of Egypt long ago. It is only in recent years, as a result of the painstaking research work in the central Ophthalmic Memorial Laboratory and through cooperation of nearly all the principal ophthalmic hospitals all over the country, that a thorough study of such yearly epidemics was made and accurate graphs done to record the results in a most concise form.

It was shown in the first place:

(1) That each Koch-Weeks and gonococcus conjunctivitis shows a very marked and regular seasonal variation peculiar to itself.

(2) That definite common factors govern both in a most definite way. These are: (a) Atmospheric temperature; (b) relative humidity; and (c) the fly-breeding season.

Campaign Against Blindness

It is obvious, therefore, from all these details that tremendous work lies before those who are undertaking the problem of combating ophthalmias in Egypt, and diminishing the incidence of blindness among its population.

We have seen that, from the epidemiological and endemiological point of view, whatever is done to combat the acute ophthalmias will operate automatically against the spread of trachoma.

Next comes the question of the fly-breeding control, the fly being a great carrier of acute ophthalmias. This is a matter that must be left to sanitary and public health authorities, after putting into their hands sufficient data to bring out the vital importance of the problem. Anyone who has visited a typical Egyptian village cannot help feeling at once how difficult, if not impossible, it is to eradicate the fly under the prevailing conditions and modes of living. Controlling the methods of spread of infection, which is of paramount importance in combating and preventing all epidemics, is a forlorn hope in the case of ophthalmias. The burden lies, therefore, on those concerned, to institute immediate treatment and to organize a plan to make early treatment available to the poor patients.

The aims of the Ophthalmic Section of the Ministry of Health are:

1. Treatment by the ophthalmic traveling and permanent hospitals.
2. Treatment in schools (primary and elementary).
3. Research in connection with eye diseases.
4. Teaching of ophthalmology to medical staff.
5. Public education on ophthalmic hygiene.

This section has readily grown according to its increased recognized importance. It now comprises 101 ophthalmic hospitals, 15 of which are flying tents.

The treatment of children at schools is very important, as it has been shown before how ophthalmia and subsequently trachoma so universally affect the children in their tenderest age.

The following statistics for the year 1945 give some idea of the tremendous ophthalmic work done in these units:

Number of new patients seen		1,197,040
Number of in-patients treated		35,858
Number of major operations		88,777
Number of minor operations		161,578
Number of acute ophthalmias:		129,922
(1) Children (less than one year)	100,152	
(2) Other ages	29,770	

The result of this continued campaign to reduce the incidence of blindness in the country may be deduced from the following, taken from the official census of the country:

Incidence of total blindness in 1907	1.3 per cent
Incidence of total blindness in 1917	1.2 per cent
Incidence of total blindness in 1927	0.7 per cent
Incidence of total blindness in 1937	0.5 per cent

In my experience, which covers 34 years of ophthalmic practice, I can clearly observe the difference between the blind who used to flock to the hospitals in 1913 and their gradual, obvious decrease in successive years.

Anti-Ophthalmia Campaign.—The various compounds of sulfonamides were made available to all ophthalmic hospitals for free use by the patients, leaving it to the discretion and experience of the treating doctors. Two years ago, when its beneficial and marvelous effect was beyond doubt, and the necessary dosage was estimated in the research centers of the Section, it was introduced as a routine and regular treatment for all ophthalmia cases. It is very interesting to note that all observers in all our ophthalmic institutes are agreed that only very small doses are necessary to abort an early uncomplicated case of acute ophthalmia. For example, the following doses are proved highly sufficient to cure a case, if distributed over 2 to 3 days' treatment, in half gram tablets:

For an infant	1–2 tablets in all
For a child	2–4 tablets in all
For an adult	6–8 tablets in all

The sulfa compound found in our experience to be most efficient is sufathiazole. It was, therefore, used for all routine work and no complications were so far reported.

Mention has not been made of penicillin. The Ophthalmic Section has given it thorough attention and study. Although it has proved a great success in the treatment of gonococcal ophthalmia, it is, so far, not practical for use in routine work, on a large scale. It is kept only for serious, resistant, or complicated cases.

Recently the Egyptian Royal Ophthalmic Society has submitted to the Government an extensive project, based on the above considerations, for the treatment and eradication of acute ophthalmia among the poorer classes and peasants. The Government appointed a committee of the most distinguished ophthalmologists in Egypt, under the supervision of His Excellency, the Under-Secretary of State for Public Health, the writer, who is president and director of Ophthalmic Hospitals, and the Honorable Secretary, Dr. M. Khalil, to investigate the question most carefully and submit the necessary suggestions and required legislation to carry out such a huge task.

An exhaustive report was handed to the Ministry of Public Health recently and active steps are being taken to carry out all its recommendations. The salient points in this program are:

1. Intensive, regular propaganda on the necessity of early treatment, and the dangers of negligence. Such propaganda will be part of the duty of the local medical officer of health and his assistants: the local midwife, the child welfare centers, the elementary compulsory schools in the village, the primary schools, and, in short, every authority and establishment whose work brings them in contact with the people.

2. Making acute ophthalmia a notifiable disease, notification being meant only to enable authorities to instruct the parents as to the treatment, which is given gratis.

3. A system to make sulfonamides easily available to the most remote or smallest village, on the shortest notice possible.

4. The establishment of a highly equipped research center and institute. Its principal work will be investigation into the present and future state of ophthalmias in Egypt and following up and adding to all recent advances in this branch of science. It will be, therefore, controlling, from the scientific point of view, the above-mentioned scheme, adding or modifying, according to scientific progress or discoveries.

Conclusion

From the human point of view, the program against ophthalmia will save annually thousands of wretched people from living their miserable dark, blind life. From the economic point of view, it will restore to the country a great productive energy which was yearly doomed to inertia by blindness.

It is a fact that the sulphonamide treatment lessens the incidence of carriers of infection that perpetuate the epidemics from one season to another.

This treatment, therefore, reduces the overcrowding which the ophthalmic hospitals suffer yearly, especially during the epidemic season. The overtaxed doctors working in these units accordingly will be relieved.

Egypt, I am sure, will gladly do all it can to further its campaign for eye health, and in its efforts is completely supported by His Excellency, the Minister of Public Health, who sponsors the program, as well as by His Majesty, King Farouk I, whose keen wish it is to organize a wholehearted campaign against poverty, ignorance, and disease.

The Eye in Relation to Systemic Diseases

Joshua Zuckerman, M.D., F.A.C.S.

THE author describes the rôle of the ophthalmologist as a health detective, through whose eye examinations systemic diseases are frequently discovered.

ALMOST daily the practice of a busy ophthalmologist (eye physician or eye surgeon) witnesses the enactment of a drama in which a systemic or remote condition or disease has endangered, injured, or destroyed a patient's sight, his eyes, or even his very life. A patient who presents himself for a routine eye examination may be totally unaware of any disturbance in his eye or of any related disturbance in other organs or parts of his body, but generally his symptoms or complaints are related to the doctor's findings. In many cases an eye reflects all the evidence necessary for diagnosis; in other cases it presents only a clue to the discovery of the disease.

It is interesting to know how a competent ophthalmologist proceeds. A thorough examination yields him information that will surprise you. First he makes a general survey of you as a whole and of those parts of your body affection of which may have some relationship to your eyes; then he questions or interrogates you to discover what eye complaints or symptoms you have. This is followed by an inquiry into your family and personal history, to determine whether you may have inherited a tendency or predisposition toward some diseases or conditions. Finally, he examines your eye proper.

If he is experienced and astute, an eye physician can readily recognize many remote symptoms or signs as clues to the presence of eye diseases. Each little abnormality has a significant meaning of its own. For example, a ricket-shaped head may indicate the

possible presence of congenital cataracts; puffiness of the face and eyelids often found in kidney disease may indicate the presence of disease of the retina; a distorted face caused by facial paralysis may suggest etiologic diseases which may also affect the eye, resulting in arteriosclerotic or syphilitic disease of the retina; a rash, scars, or ulcers, suggestive of syphilitic, tuberculous, or leprous disease may indicate involvement by these diseases of many external or internal parts of the eye; a saddle-shaped nose may indicate syphilis which may cause many diseases of the eye; pale lips which occur in anemia may be accompanied by hemorrhages in the retina or vitreous and, in many cases, by eye fatigue; blue lips of congenital heart disease may be associated with hemorrhages or occlusion of vessels in the retina; peg-shaped, notched teeth of syphilis may be associated with numerous eye lesions of the external or internal parts of the eye; the irregular enamel of the teeth of rickets may be suggestive of congenital cataracts; tremulous hands of hyperthyroidism may be associated with bulging of the eyes; the cigarette-rolling movement of the fingers in Parkinson's disease may be associated with spasm of the extraocular muscles; lobster hands, webbed fingers and supernumerary fingers and toes may be associated with oscillation (nystagmus) of the eyes, cataract and crossed eyes; unusually long fingers may be associated with dislocation of the crystalline lenses; enlargement of the hands in certain disturbances of the pituitary body may be associated with atrophy of the optic nerve. There are many other general manifestations of eye diseases which the ophthalmologist can readily recognize but those just mentioned are sufficient to give you an idea of how the body in general is related to the eye.

This general survey in the examination is followed by an interrogation regarding your eye complaints or symptoms, as well as your history, and finally by examination of your eyes proper as well as your eyelids, the tear apparatus and the areas surrounding your eye.

Your eye complaints or symptoms which may be indicative of general conditions are numerous and varied. For example, pain in or about your eyes, in your orbit, or in your head (headache); redness, congestion or inflammation of your eyelids, of the area surrounding your eye, or of your eyeball; crusts or flakes on the

margins of your eyelids; excessive or insufficient tearing or secretion; the presence of a lump, mass or swelling in or about your eye; disturbances of the formation, position, or function of your *eyelids*; disturbances of the position of your *eyeball* (either excessive prominence, or a sunken appearance), crossed eyes or wall-eyes, or "shaking" or oscillation of your eyeball (nystagmus); and, finally, disturbances of your *vision* which may include eye fatigue, vertigo, indistinct distant or near vision, indistinct or absent direct or central vision, night vision, day vision, double vision, multiple vision, panoramic vision (processions or scenes), shifting vision, colored vision (yellow, red, white, blue, green, and violet, and colored halos around lights), dazzled vision, spotted vision, flashes of light, and loss of vision (which may be gradual, sudden, momentary or partial), or loss of vision for (only some or for all) colors.

The history of your complaints, of your family and of your ancestry is informative. For example, a history of German measles in a mother during pregnancy may indicate congenital cataracts in the offspring. A history of retinitis pigmentosa in the ancestors is of importance in intermarriages.

The eye physician then methodically examines the external parts of your eye in natural or artificial daylight illumination, first with his unaided eye, then with the aid of increased illumination and magnification and finally with an instrument called an ophthalmoscope examines the interior of your eye. The interior of your eye normally presents the optic disk (i.e., the head of the optic nerve), the retina (the layer on which images are formed) and arteries and veins which are part of the blood vessel system of your brain and of your entire body. Any of these parts may be affected by disease. For cases in which the diagnosis is uncertain or obscure, supplementary methods of examination and supplementary instruments are used to confirm or to disprove a suspected diagnosis. For example, it may be necessary to study your field of vision, to obtain your blood (or even the spinal) Wassermann report, smears, cultures, X-ray, etc.

Before proceeding to the discussion of the examination of the eye proper, it is advantageous to acquire at least a general understanding of the construction of the eye and of the method in which it

functions. The eye aptly has been compared to a camera. It has an outer opaque coat or covering (the sclera) for protection of the eyeball; a middle coat (the choroid) which nourishes a good part of the innermost layer (the retina—the layer which corresponds to the film in the camera, on which images are formed for sight); it has a circular sort of watch glass (the cornea) in front—the only transparent part of the surface of the eye. Behind the cornea is a "water" filled area (the anterior chamber) backed by a circular, colored (blue, brown, or gray) curtain or diaphragm (the iris)—which is suspended across the eye and perforated in its center by a circular (black) aperture (the pupil) which varies in size depending on health, disease, the intensity of light, or the use of drugs. Behind the aperture there is a lens (like the lens in the camera) which can be focused for distinct vision spontaneously with or without the aid of spectacle lenses for viewing either distant or near objects clearly. Behind the lens, the posterior two-thirds of the eyeball is filled with a transparent, colorless, jellylike mass—the vitreous. At the back of the eye, the nerve (optic nerve) for sight, and the one half million fibers of which it is composed separate like a sheaf of wheat to lie in and form the innermost layer (the retina). Any one or several of these structures of the eye may be affected by remote diseases (brain tumor, meningitis, malignancy, etc.) or by general diseases (syphilis, tuberculosis, diabetes, etc.) of other parts of the body.

Examination of the eye includes inspection (observation or survey); palpation (for tenderness, detection of masses or irregularities); and auscultation (examination with a stethoscope) for abnormal sounds at the temple or over the eyeball. Before inspecting your eye proper, the physician examines the area about your eyes and your eyelids in general; the eyelashes are inspected (for loss of lashes, for color, lice, fungi, etc.); then the margins of your eyelids are examined for crusts, flakes, redness, thickening, or excessive secretion on your eyelid margins; the lining of your eyelids and of the front of the eyeball (the conjunctiva) for evidence of inflammation (all types of conjunctivitis from simple catarrhal "pink eye" to diphtheritic, gonorrheal, tuberculous, or syphilitic conjunctivitis); the lacrimal or tear apparatus for obstruction by syphilitic, tuberculous, neoplastic, or other lesions; the sclera (the

white of the eye), particularly for inflammation (scleritis), generally attributed to tuberculosis and more rarely to syphilis, rheumatoid disease, or focal infection; the cornea (the watch glass or clear outer window), for inflammation (keratitis), especially syphilitic and tuberculous; the anterior chamber for evidence of the presence of inflammatory deposits (syphilitic, tuberculous, or due to focal infection); the pupil for equality with that of the other eye, for its size, shape, reaction to a light directed at it and for its response to accommodation (focusing at a near object); the iris (for color, position, etc.); the human lens (for cataract and dislocation); the vitreous (for opacities, hemorrhages, etc.), and especially the retina and choroid (for evidence of innumerable lesions caused by general diseases.)

The importance of the various lesions of the exterior and interior of the eye which may be caused by general diseases may be illustrated readily by the following frequently encountered examples of case histories:

Case 1.—A young woman, 22 years of age—a laboratory technician who made sections of tissues such as tumors and other tissues which were surgically removed from the body for microscopic examination—came to the office complaining of eye fatigue and slight blurring, especially when she used the microscope. She thought she required eyeglasses. Examination of the interior of her eyes and the fields of vision revealed just enough evidence to make a diagnosis of beginning brain tumor. After removal of the tumor complete recovery of vision occurred. Ten years have passed. The patient is alive and well, has married, and given birth to a normal child. Had the condition not been diagnosed, not only blindness but also paralysis and death would have ensued.

Case 2.—A boy, 9 years of age, one of a family of six children, had complained for several months to his busy mother that his head hurt and his vision seemed blurred. He had had a few examinations elsewhere and glasses had been prescribed. By the time he was referred to me I found that his left eye was totally blind; his right eye could distinguish only hand movements at 1 foot. Examination of the interior of his eye revealed evidence indicative of tumor of the brain. Immediate intervention was indicated not so much to restore vision but to save the patient's life. His skull was opened 2 days later and the tumor was found and removed. The patient's recovery from the operation was uneventful. However, because too many months had been wasted before the diagnosis was made,

the visual result was unsatisfactory—one eye was blind, the other could distinguish hand movements at 2 feet. Early diagnosis would have meant good vision.

Case 3.—A dentist's wife, 35 years of age, complained of sudden loss of ability to read with her right eye. Examination revealed the presence of a non-seeing area in the center of the field of vision of that eye. A lesion in the optic nerve behind the eye was diagnosed. Careful inquiry into her history revealed that she was childless, had been previously treated for sterility and amenorrhea by injections over a period of many years. Examination of the skull by X-ray confirmed the suspicion of a slowly growing type of tumor of the brain, a type that responds to treatment by X-ray. Her amenorrhea and sterility really had been due to the unrecognized, slowly growing brain tumor. By means of a series of penetrating X-ray treatments the patient's life was saved and her vision was completely restored.

How was the diagnosis of brain tumor made in each case? By careful examination of the fields of vision and of the interior of the eye with an instrument called an ophthalmoscope. The optic nerve (the nerve of sight) which is visible in the eye is really part of the brain. Its fibers extend from the eye to the back of the brain so that pressure exerted upon them by a tumor becomes evident in the eye. In most cases of brain tumor it is the ophthalmologist who makes the diagnosis.

Case 4.—A male patient, 38 years of age, complained of headache. After questioning, he stated proudly that he "never had a sick day in his life." Examination revealed serious disease of the vessels of the retina due to high blood pressure, arteriosclerosis and kidney disease. While I was devoting my attention to examining the interior of his eyes he asked facetiously and impatiently, "Well, will I live?" and, of course, I answered, "Certainly!" but on the basis of my findings in his eyes I made the sad mental reservation "about 1 year." I am sorry to report that my prognosis was right. Had he presented himself for examination sooner, the diagnosis would have been made earlier and proper treatment instituted to prolong his life.

Case 5.—A male patient, 30 years of age, who had always been well, complained of redness, pain and tearing of his right eye. On examination it was found that he had an iritis (an inflammation of the iris—the part of the eye that gives it its color). This condition is generally caused by syphilis. A blood Wassermann test confirmed

the diagnosis. Treatment was instituted which cured not only the eye condition but also the patient's general disease, preventing many serious complications and rendering him noninfectious to his wife and household.

Case 6.—A male patient, 42 years of age, was referred to me for examination of his eye grounds (the retina, optic nerve, and blood vessels) to determine whether an operation (sympathectomy) would be of benefit in reducing his hypertension. His systolic blood pressure was 210 (normally it ought to be approximately 140) which meant that the patient had nothing to look forward to but the inevitable development of heart failure, kidney disease, or a "stroke." Examination of the blood vessels of his retina (which are part of the blood vessel system of the entire body) revealed that operation was warranted. After operation the blood pressure was reduced to 160 and, of course, the usual dangers of hypertension were avoided and life was prolonged.

Case 7.—A young lady, 18 years of age, complained of spots, blurred vision, and flashes of light in her left eye. On examination, a patch of inflammation in the middle layer of her eye (choroiditis) was found. Further investigation confirmed the suspected diagnosis of tuberculosis. Proper local and general treatment resulted in recovery of vision and health.

Case 8.—A young male patient complained of the presence of a lump in his eyelid which, on examination, appeared to be a primary chancre of syphilis. The diagnosis was confirmed by a Wassermann test and proper treatment was administered, warding off many serious general complications.

Case 9.—A female patient, 40 years of age, complained simply of eye fatigue and reading difficulty for which she wanted eyeglasses. However, examination of the interior of her eye revealed a picture characteristic of diabetes. The patient was astonished when she was informed that she had diabetes. A blood sugar determination confirmed the diagnosis and proper diet and insulin therapy were administered.

Case 10.—A female patient complained of recurrent attacks of redness of the margins of the eyelids and of the eyeball. In this particular case vitamin deficiency was diagnosed. The condition responded to vitamin therapy.

Case 11.—In the 3rd month of pregnancy a patient complained of headaches and blurred vision. Examination of the interior of her eyes revealed spasm of the blood vessels as well as edema of the

optic nerve head. Repeated observation confirmed the conviction that toxemia of pregnancy was present and that the pregnancy should be terminated to prevent further damage to her eyes and possibly even blindness. After the pregnancy was interrupted the eye grounds returned to normal.

It is evident that careful examination of the exterior as well as of the interior of the eye ("eye grounds") is of significance in diagnosis and in treatment not only of an eye condition but also in many cases of an underlying systemic or general disease. Early discovery of a lesion may be of vital importance in the prevention of more extensive involvement of the affected eye and of future involvement of the unaffected eye. In addition to the functional value of each eye, that is, retention of its vision individually, its value when employed in association with its fellow eye is important. A one-eyed patient has no depth perception. The disfiguration that results from loss of an eye is obvious. The psychologic trauma that results from loss of an eye merits consideration. It may be manifested by resentment, mood fluctuations, anxiety concerning social and economic relationships, and, especially, fear of injury to, or loss of, the remaining eye.

Early ophthalmologic examination may save one of your eyes or even both. It may be helpful in diagnosing an underlying distant condition (brain tumor, meningitis, malignancy, etc.), or a systemic or general condition such as syphilis, tuberculosis, diabetes, nephritis, hypertension, arteriosclerosis, anemia, leukemia, vitamin deficiency, toxemia of pregnancy, and neurologic and endocrine disturbances. Moreover, early examination may save not only your sight, but also save or at least prolong your life.

Note and Comment

National Society Holds Three-Day Conference.—Approximately 400 leaders and workers in sight conservation attended the 1946 Conference of the National Society for the Prevention of Blindness, held in New York City, November 25–27. In addition to representatives from 25 states and the District of Columbia, representatives from Brazil, Canada, China, Egypt, England, Haiti, India, Iraq, Puerto Rico and Syria, many of them official, attended the sessions, offering an opportunity for all to learn of progress in sight conservation from all parts of the world.

The first session, devoted to the subject of "The Vision Program in Industry," was under the able chairmanship of Thomas D. Allen, M.D., recently a member of the Joint Committee on Occupational Ophthalmology of the American Academy of Ophthalmology and Otolaryngology and the American Medical Association. A highlight of this session was the discussion and questions and answers period on the subject of "Professional Guidance in the Plant Program." Dr. T. Lyle Hazlett, Pittsburgh, Pa., medical director of the Westinghouse Electric Corporation, acted as chairman. The responsibilities for sight conservation by the ophthalmological, optometric, optical, and nursing services were ably presented by a representative of each group.

Dr. Howard A. Rusk's talk on "Increasing the Opportunities for Sighted Workers with Visual Handicaps," given at the luncheon meeting, was especially pertinent following the morning session. Dr. Rusk, who recently was appointed professor of medical rehabilitation, New York University College of Medicine, is an associate editor of *The New York Times*, and served as wartime chief of the Army Air Forces Convalescent Services Program. While discussing the subject of the handicapped in general, Dr. Rusk did point out the feasibility of finding suitable jobs in which visual limitations are not handicaps.

Some of the medical aspects of sight conservation were emphasized in two subsequent sessions of the Conference. Dr. Conrad

Berens was chairman of the meeting devoted to "Developmental Eye Conditions in Children," in which Congenital and Hereditary Conditions were presented by Dr. Harold Falls, of the University of Michigan Medical School; Retrolental Fibroplasia was discussed by Dr. Paul M. Runge of the Massachusetts Eye and Ear Infirmary; and Congenital Cataract Associated with German Measles was described by Dr. Herbert Miller, professor of pediatrics, School of Medicine, University of Kansas.

The social implications of these medical problems need no minute discussion nor do they need to be pointed out in the discussion of "Medical Advances in Restoring and Conserving Vision," the subject of another special session of the Conference. Dr. R. Townley Paton, vice president of The Eye-Bank for Sight Restoration, Inc., presided, and the Conference was brought up to date on the present status of corneal transplants, and sulfa and penicillin treatment in eye infections, by leading doctors in these fields. Questions presented during these meetings brought out the relationships of the nurse, the social worker, and the community in dealing with these problems.

Community relationships were further emphasized in the Conference panel discussion on "Glaucoma Control Through Community Projects," under the chairmanship of Dr. Willis S. Knighton. Community representatives from Washington, D. C., Philadelphia, Pa., Chicago, Ill., Pittsburgh, Pa., Minneapolis, Minn., and New York—localities selected because they have already recognized their responsibilities in glaucoma control—participated in this discussion, describing their programs.

International aspects were taken under consideration at the dinner meeting, of which Mr. Mason H. Bigelow, the National Society's president, was chairman. Dr. Wilbur A. Sawyer, director of health, United Nations Relief and Rehabilitation Administration, spoke on "International Health Activities and the Part of the Voluntary Agency," drawing upon his vast experience in health problems at home and abroad. The international spirit was further emphasized by the presence at the speakers' table of the foreign visitors, each of whom was introduced to the gathering, and took a bow. Dr. Hassan Barrada Bey, officially representing Egypt, spoke of the campaign against blindness in Egypt, and

distributed a paper on the subject, published especially for the National Society's Conference. Folk songs, presented by the Mariners, a radio quartet, were an added attraction of the evening.

The last day of the Conference was devoted to two aspects of sight conservation, one being the subject of "Meeting the Need for Professional Personnel," under the chairmanship of Mrs. Charlotte-Ann Billington Breed, executive secretary of the Grand Rapids Association for the Blind and Sight Conservation. The professions considered were the medical social work, nursing, and teaching—each one discussed by a representative of the profession.

The luncheon meeting which marked the closing of the Conference was devoted to two presentations on lighting. Mr. Preston S. Millar, president of the Electrical Testing Laboratories, Inc., spoke on "New Light on Lighting," pointing out the need for applying sound principles in a consideration of lighting problems. The illustrated talk by Mr. George Ainsworth, consulting engineer on illumination, was a highly stimulating discussion of the subject of "Spatial Lighting."

In addition to the highlights mentioned in this report, the National Society maintained an exhibit of some of its most recent units, as well as a display of material submitted by local prevention of blindness agencies. Much interest in the displays as well as in the material for distribution was evinced. The showing of four films related to sight conservation also attracted a considerable audience. The pictures shown were: "Your Children's Eyes"; "The Eyes Have it"; "Eyes for Tomorrow"; and "Your Richest Gift."

The interest and enthusiasm of the participants at this 1946 Conference are indications of the recognition of sight conservation as a vital and arresting problem, challenging a variety of professions and fields. The comment of one of the program participants, an outstanding personality in her field, is indicative of the general expression of the visitors. She writes: "It is the first time I have ever attended a three-day meeting without missing a single session, or being bored at any time. . . . I understand many things which were not clear to me before, and I think I can pass along the information as I address groups of nurses throughout the country."

Most of the Conference papers will appear in subsequent issues of the REVIEW or as separate publications, offering an opportunity

for those unable to attend the Conference to catch up on the aspects presented at that time.

Delta Gamma Fraternity Develops its Sight Conservation Program.—The Delta Gamma Fraternity, an international social organization of college women, has had as its fraternity project since 1936, "Sight Conservation and Aid to the Blind." In 1945, the 169 collegiate and alumnae groups in the United States and Canada raised or contributed approximately $20,000 for various phases of this work.

Each local group determines the particular kind of work it will do in its own community, after conferring with and taking the advice of the professional workers.

"After much investigation, both from the local and national views," the Fraternity reports, "we have found that, generally speaking, the greatest opportunity and need for work such as we can contribute lies in the fields of prevention of blindness and sight conservation, and education of the preschool blind. More and more as new local projects are undertaken, some aspect of work for prevention of blindness or conservation of sight is chosen."

In addition to local community projects, a wish was expressed by many groups to choose an additional project of country-wide extent. As a result, at the recent Delta Gamma Convention held at the Huntington Hotel, Pasadena, California, the following resolutions were passed:

"Be It Resolved:

"1. That a fund of $1,000 be established for annual Delta Gamma scholarships in the fields of Prevention of Blindness and Sight Conservation exemplified by specialized prevention study, training of orthoptic technicians, training of teachers for Sight-Saving Classes, and training of workers for the preschool blind; such scholarships to be financed by voluntary contributions from individuals, chapters and associations. If in any one year the voluntary contributions fall below $1,000, the balance, not to exceed $500 in any one year, shall be contributed by the Fraternity from the General Fund.

"2. That a professional committee be appointed by the Fraternity Project Committee for the screening of candidates for

such scholarships; that the final selection of candidates and the administration of the fund be determined by the Fraternity Project Committee and the Fraternity Council.

"The following professional committee for the screening of candidates for the scholarships has been appointed:

"Chairman, LeGrand Hardy, M.D., president of the American Orthoptic Council.

"Mrs. Virginia S. Boyce, administrative assistant, National Society for the Prevention of Blindness, Inc.

"Miss Ruth E. Lewis, professor of social work, George Warren Brown School of Social Work, Washington University, St. Louis, Missouri.

"Miss Ruth B. McCoy, assistant director, New York State Commission for the Blind.

"Lillian Ray Titcomb, M.D., president of executive committee, Nursery School for Visually Handicapped, Los Angeles, Calif.

"We are very proud of this committee," continues the Report, "for each member is an outstanding person in some field of prevention or work with the preschool blind; each is highly qualified to give us the benefit of wisdom, experience and technical information. We are indebted to them all for their generous spirit of cooperation.

"We are particularly proud that all of the persons who were asked to serve on the committee agreed to do so, despite the pressure of busy professional lives. This fact would seem to emphasize the urgency of the problem which we hope to have a part in solving.

"Applicants for scholarships in the fields outlined should write to Mrs. Richard P. Miller, 39 West Jefferson Road, Pittsford, New York."

National Society Announces Medical Social Work Scholarships. The National Society for the Prevention of Blindness announces the establishment of 9 one-year scholarships of $1,000 each for students interested in professional education to qualify for positions in the field of sight conservation and prevention of blindness. These positions, which require both community-organization and case-work skills, offer a variety of opportunities for staff workers, consultants and executives. Positions are open in public and private prevention of blindness agencies, in hospitals, and in organizations offering medical care programs.

The scholarship will provide for completion of the second year of professional education in medical social work; emphasis will be given to special medical information on eyes and to instruction in community organization. Upon completion of work at a school of social work, students will be required to attend a two-weeks Institute, which will be arranged by the National Society for the Prevention of Blindness, for orientation in prevention of blindness program planning.

Applicants must meet the following requirements:

1. Satisfactory completion of one year in an accredited school of social work.
2. Minimum age—twenty-five years.
3. Not less than two years of supervised experience in a social agency.
4. Capacity for leadership.
5. Interest in employment in a community-wide prevention program.
6. Availability for employment anywhere in the United States.

The schools now selected for these scholarship programs are:

New York School of Social Work, Columbia University, New York City.

University of Southern California, Graduate School of Social Work, Los Angeles, Calif.

Washington University, George Warren Brown School of Social Work, St. Louis, Mo.

The scholarships will be available beginning with the spring term, 1947. Application blanks may be secured by writing to the National Society for the Prevention of Blindness, 1790 Broadway, New York City 19.

Minnesota's Industrial Eye Program.—No time has been lost by the Minnesota Society for the Prevention of Blindness in setting up an eye service designed to meet the needs of industry in the reconversion period.

An attractive 16-page booklet dealing with industrial vision has been mailed by the Society to plant managers throughout the state; also a personal letter offering help on individual problems

relating to eyesight efficiency and conservation. Titled "An Ounce of Prevention," the booklet sets forth some of the state eye injury figures in the belief that management "would much prefer facing these facts than taking the slightest risk of causing the loss of an eye to an employee." In addition to the protective features of the eye program, emphasis is placed on such important factors as eye tests, proper job setup, good lighting, color painting, first aid and medical care.

Pointing out the value of matching eyes to the task, the Society quotes the following as Henry Ford's recipe for efficiency in industry: "Find out in advance whether the eyes are adapted to specific jobs, or if the job is suitable to the eyes."

In the two-year period ending June 30, 1944, there were 8,724 eye injuries among 535,000 Minnesota workers. Two cases resulted in death, three were totally blinded, 88 blinded in one eye, 139 partially blinded, 2,240 disabled by eye injuries. Wages lost amounted to $87,300. Ten per cent of all industrial accidents in Minnesota involve the eye.

Mrs. Dorothy H. Hamilton, executive secretary of the Minnesota Society, reports that a working relationship has been effected with the Industrial Safety Section of the Minnesota Safety Council, whose chairman is George W. Lawson, state secretary of the Minnesota Federation of Labor. The president of the Council, Arthur V. Rohweder of Duluth, is a member of the Society's board of directors, and cooperation is further secured through two industrial vision committees. The Society's is headed by Louis W. Hill and the Council's by C. I. McNair. Other state and regional groups cooperating in the program are the Minnesota Industrial Commission, Department of Education, Academy of Ophthalmology, Medical Association, Department of Health, Nurses Association, Automobile Association, Junior Chamber of Commerce, Northwest Chapter of the American Society of Safety Engineers, and Twin City Section of the Illuminating Engineering Society.

Minnesota industries have responded with enthusiasm to the Society's offer of information and advice on vision problems. Further details of this project may be secured from Mrs. Hamilton at the Society's headquarters, 609 Hamm Building, St. Paul 2, Minnesota.

Detroit Organizes a Society for Prevention of Blindness.—With the first meeting held on December 11, 1946, the Detroit Society for the Prevention of Blindness was inaugurated, and Mrs. Ernestine B. Davidson, who attended the National Society's Eye Institute in the spring, was appointed executive director. Already the Detroit Society has launched an active campaign for eye health and safety in industry, and developments in other aspects of sight conservation are anticipated.

Leslie Dana Gold Medal Presented to Dr. Harry Gradle.—This year the St. Louis Society for the Blind chose the Chicago meeting of the American Academy of Ophthalmology and Otolaryngology as an appropriate occasion for the presentation to Dr. Harry Gradle of the Leslie Dana Gold Medal for outstanding work in the cause of preventing blindness. Unable to be present because of illness, Dr. Gradle was represented by Mrs. Audrey Hayden Gradle, who needs no introduction to REVIEW readers. Dr. Conrad Berens, in making the presentation speech at the Faculty Luncheon of the Academy, on October 17, 1946, said in part:

"It is particularly fitting that the St. Louis Society for the Blind should have selected the time of a meeting of the American Academy of Ophthalmology and Otolaryngology for the presentation of the Leslie Dana Gold Medal for outstanding work in the cause of preventing blindness. In the first place, every woman and man here not only are friends of Harry Gradle but love him because of their respect for him personally, and appreciate his work and his numerous activities, most of which had prevention of blindness implications.

"Dr. Gradle, or 'Harry' as he is affectionately called by every member of the Academy, is indefatigable in his work for this Academy, and the postgraduate educational program and the Home Study Course have been important factors in educating ophthalmologists in this and other countries. His constant efforts to educate ophthalmologists have added new methods of prevention and treatment of eye disorders which undoubtedly have prevented much blindness.

"Because of his researches, his writings, his teachings, his organizations of the Pan-American Association of Ophthalmology, his imagination and stimulating influence in conducting the affairs of

his many activities, he is a great leader in the prevention of blindness movement. No ophthalmologist today more richly deserves the honor of being awarded the Leslie Dana Medal. It is my privilege, on behalf of the St. Louis Society for the Blind and The Association for Research in Ophthalmology to present the Leslie Dana Gold Medal for the Prevention of Blindness to Dr. Harry S. Gradle.

"May I read the inscription?

'Let the Light Remain
to Harry S. Gradle—
Distinguished Ophthalmologist and Teacher,
Ardent Worker for Saving Sight.'"

A.M.A. Council on Industrial Health Announces New Appointment.—Captain Ernest W. Brown (MC), U.S.N., recently retired, has joined the staff of the Council on Industrial Health of the American Medical Association, Chicago.

C. M. Peterson, M.D., executive secretary of the Council, in announcing the appointment, stated that Captain Brown will act as Executive Officer for the Council's Committee on Scientific Development and in matters pertaining to industrial medical education and industrial toxicology.

During the recent war Captain Brown was attached to the Office of the Surgeon General of the Navy in charge of industrial hygiene research, submarine medicine and chemical warfare medicine. He also served as liaison officer to the Committees on Industrial Medicine and Armored Vehicles of the National Research Council.

Captain Brown holds the degrees of Ph.B. and Ph.D. from Yale University, the latter in biochemistry. He received his Doctor of Medicine degree from the George Washington School of Medicine and attended the Johns Hopkins School of Public Health in 1936–1937.

He retired from the regular Navy in July, 1946, after serving for many years on the faculty of the U. S. Naval Medical School in Washington as head of the Department of Environmental Hygiene and as medical director of the New York and Washington Naval Shipyards.

New Monthly Journal on Postgraduate Medicine.—A new 96-page, monthly journal of general medicine, *Postgraduate Medicine*, presenting articles of high scientific value and clinical in-

terest, with the editorial emphasis centered on treatment, will be published beginning January, 1947, announced Dr. Arthur G. Sullivan, managing director of the Interstate Postgraduate Medical Association of North America. Much of the basic material will come from the addresses and diagnostic clinics which are presented at the annual meetings of this association, but it will be supplemented by new material originating in various postgraduate centers. Among special features planned are "This Month in Medicine," a review of medical events, state or national meetings, hospital staff meetings, etc.; a Department of Clinical Photography; a Consultation Service; Book Reviews; Association Notes, a department relating to the activities of the Interstate Postgraduate Medical Association; Clinical Notes on new drugs and instruments. The subscription price is $8.00 per year.

New York University College of Medicine Awarded Fellowships.—On April 22, the Eye-Bank for Sight Restoration, Inc. awarded a fellowship for experimental work in corneal grafting to the New York University College of Medicine, to be used by Dr. Donald Hughson, of Bellevue Hospital. Dr. Hughson is in the department of ophthalmology, which is under the direction of Dr. Daniel Kirby, professor of ophthalmology.

Awards were also announced, this fall, for the four Lions Club scholarships for advanced study of eye diseases at the New York University College of Medicine. The doctors, selected by the University's department of ophthalmology for the $500 awards are: Edward Danforth, Bainbridge, N. Y., Charles Goldsmith, Catasauqua, Pa., Jonathan L. Harris, Elberon, N. J., and Hugh McGhee, Jeffersonville, N. Y. All are postgraduate students at the College of Medicine and are specializing in ophthalmology. The Eye Conservation Fund, Inc. of the New York Lions Club initiated the scholarship plan last spring with a gift of $2,000 to the College.

Hunterian Lecture on Occupational Eye Diseases.—Mr. Joseph Minton, F.R.C.S., long active in industrial ophthalmology, and recently a major in the British Army, was appointed Hunterian Professor for 1947, by the Royal College of Surgeons. Mr. Minton will be giving a Hunterian Lecture on *Occupational Eye Diseases and Injuries* in June, 1947.

National Society Staff Appointments.—The National Society for the Prevention of Blindness is pleased to announce the appointment of Dr. Franklin M. Foote as medical director and Miss Mary Blanche Moss as medical social worker on its staff. Coming to the Society upon his discharge from the Medical Corps of the United States Army, with the rank of major, Dr. Foote retains his post as assistant professor of public health and preventive medicine at Cornell University Medical College. He was formerly associated with the New York City Health Department and the Connecticut State Department of Health. A fellow of the American Public Health Association, Dr. Foote is present chairman of its Committee on Scientific Exhibits. Miss Moss' experience includes supervisory service in the medical social service departments of Charity Hospital, New Orleans, and New Haven Hospital, as well as five years overseas with the Red Cross as supervisor of medical social workers in the European theater.

Drivers' Vision Regulation Revised.—The Interstate Commerce Commission has revised its visual requirements for truck and bus operators to meet the A.M.A. standards. Drivers must now have at least 20/40 vision in one eye and 20/100 in the other eye, side vision of 45 degrees, and must be able to recognize colors. The I.C.C. stresses the relation of vision of motor vehicle drivers to highway safety since, with the increase in the numbers of automobiles and trucks during the postwar period, the hazards to safety will multiply. The desirability of periodic checkups of the vision of drivers of motor vehicles should be considered, in attacking the problem of vision and highway safety.

England Establishes Four Schools for Partially Sighted.—In accordance with the new Education Act, arrangements are being made for both blind and partially sighted children to be educated in separate schools. The schools for the partially sighted only will be the *West of England School* at Exeter, the *Barclay School for Girls* at Sunninghill, the school at Preston, and the *Brighton School for Blind Boys* in Brighton, which accepts only partially sighted children now.

Glaucoma Prize.—The National Society for the Prevention of Blindness announces that papers submitted for the glaucoma prize

of $500 offered in 1944 did not conform to the criteria set up by the ophthalmological committee selected to award the prize. Therefore, the prize is again offered for the most valuable original paper adding to existing knowledge about the diagnosis of early glaucoma or the medical treatment of noncongestive glaucoma. The criteria may be secured by writing to the National Society for the Prevention of Blindness, 1790 Broadway, New York 19, N. Y.

Papers may be presented by any practicing ophthalmologist of the Western Hemisphere and may be written in English, French, German, Italian, Spanish or Portuguese. Those written in any of the last four languages should be accompanied by a summary in English. Closing date for receipt of papers is December, 1947.

The award will be made by the Society with the guidance of an ophthalmological committee composed of Drs. John N. Evans, chairman, Frank C. Keil, Daniel B. Kirby, John M. McLean, R. Townley Paton, Algernon B. Reese, Bernard Samuels, Kaufman Schlivek, Willis S. Knighton, Manuel Uribe Troncoso, David H. Webster.

Preservation of Corneal Tissue Limited to Three Days.—Corneal tissue cannot be preserved longer than three days before transplantation, a Cleveland physician has found after experimenting with six different preservative mediums, according to the current issue of the *Archives of Ophthalmology*, published by the American Medical Association.

The author—Charles I. Thomas, M.D., from the Department of Surgery, Division of Ophthalmology, Western Reserve University School of Medicine—used the eyes of rabbits for his experiment.

"Corneal tissue will remain clear and of normal thickness and can be used suitably for transplantation up to a period of three days," he states. "Thereafter the tissue becomes progressively hazy and thickened, being thus rendered unsuitable for grafting."

In order to obtain the best operative results in corneal transplantation, the author maintains that the material should be fresh and used shortly after it is removed from the donor. The Eye-Bank for Sight Restoration, Inc., since its organization, has facilitated this rapid distribution.

Annual Seminar on Reading Disabilities, February 3–7, 1947.—The 1947 Annual Seminar on Developmental Reading will be con-

ducted by the Reading Clinic Staff, Department of Psychology, Temple University, from February 3 to February 7, inclusive. Lectures, demonstrations, and discussions will be used to develop the central theme: "Differentiated Corrective and Remedial Reading." The activities of the Institute will be differentiated to meet the needs of classroom teachers, remedial teachers, school psychologists, supervisors, administrators, neurologists, and vision specialists. For copies of the program and other information regarding this one-week Institute, write to Dr. Emmett Albert Betts, Reading Clinic, Temple University, Philadelphia 22, Pennsylvania.

New Jersey Mobile Eye Clinic.—Communities in the more remote areas of the state of New Jersey, in which ophthalmological services are not available, now have at their disposal a motorized eye clinic, equipped with a two-man staff—a qualified ophthalmologist and a driver-technician. The present plan calls for its use three days a week. The mobile, specially built vehicle was made available to the New Jersey State Commission for the Blind by the Junior Women's Clubs of New Jersey.

Army Commendation to Ophthalmologist.—The National Society is pleased to hear that one of its distinguished advisory members, Lt.-Col. Brittain Ford Payne, M.C., was highly commended for the outstanding course in ophthalmology at the AAF School of Aviation Medicine during the period from November, 1942, to December, 1945, and was authorized to wear the Army Commendation Ribbon.

Weather Influences Eye Conditions.—According to Dr. Ernst Fischer of the Baruch Center of Physical Medicine at the Medical College of Virginia, climate and weather may affect bodily functions and influence sickness. Glaucoma and other eye conditions seem to become worse with changes in weather. Using modern scientific methods to check up on Hippocrates' theory, he concludes that "Weather changes seem to place an excess burden on the human organism and seem to influence the maximal muscle efforts of normal subjects."

Indiana Committee on Conservation of Vision Appointed.—The chairman of the Committee on Conservation of Vision of Indiana

State Medical Society is Dr. C. W. Rutherford of Indianapolis. The other members are Dr. O. T. Allen, Terre Haute; Dr. M. G. Erehart, Huntington; Dr. Eugene L. Bulson, Fort Wayne; and Dr. H. Brooks Smith, Bluffton.

Journal of Social Ophthalmology.—A hearty welcome is due the *Journal of Social Ophthalmology* upon its resumption after the interruption of the war years. The *Journal of Social Ophthalmology* is published bilingually, in French and English, by the International Association for the Prevention of Blindness. The first issue, which is Volume 111, No. 2, July, 1946, contains several articles of interest, particularly, "Minor Injuries of the Eyes," by the English ophthalmologist, Frank W. Law, M.D., and "The Causes of Blindness in Denmark," by Holger Ehlers of Denmark. In addition, an article on industrial eye protection by the late Louis Resnick, as well as bibliographies and news notes, was included in the contents.

Sight Conservation in India.—Dr. Victor C. Rambo, chief of staff of the Mungeli Christian Hospital, Mungeli, India, was one of the National Society's distinguished guests during its recent Conference. From him much has been learned about the problems of preventing blindness and saving sight in India. In his hospital alone, he reports, there were 2,327 eye operations during the year 1945, of which 1,087 were for cataracts. The hospital is equipped not only for the treatment of eyes, but as a general hospital.

The Rambo Committee, consisting of former medical school companions of Dr. Rambo, are trying to advance his very necessary work in India by obtaining funds for adding to the facilities of his hospital.

New Jersey Releases New Film.—"Conquering Blindness" is the name of a new motion picture with sound, released by the New Jersey State Commission for the Blind. It is an excellent film describing the program of the New Jersey Commission—its educational and assistance programs for the blind—and should prove useful to other local commissions in interpreting their activities to the public. The film which runs about twenty minutes has Milton Cross as narrator. Inquiries may be addressed to the New Jersey State Commission for the Blind, Trenton, N. J.

Wide Medical Interest in Optic Atrophy Study.—The National Society is gratified at the interest on the part of the medical profession in the study being made by Dr. Walter L. Bruetsch on the subject of syphilitic atrophy. This study, assisted by contributions from the American Social Hygiene Association and the National Society, was the subject of an exhibit at the American Medical Association meetings in San Francisco, California, early in July, and aroused much interest. Subsequently, Dr. Breutsch was invited to display the exhibit at the joint meeting of the Latin American Medical Association and the Seventh National Congress of Mexican Surgeons, in Mexico City, where it was awarded a "Distinguished Service Diploma" for its excellence. It is hoped at a later date that REVIEW readers will have an opportunity to get details regarding this important study.

National Society Participation in Recent Meetings.—At the meeting of the American Medical Association, the National Society maintained an exhibit on glaucoma, under the direction of Dr. Willis S. Knighton, chairman of the Committee on Glaucoma, and Mrs. Virginia S. Boyce (formerly Miss Virginia M. Smith), the Society's administrative assistant. Mrs. Boyce also participated with other staff members at the National Conference of Social Work, held in Buffalo, last spring, at which several meetings were devoted to various social work aspects of sight conservation. More recently Mrs. Eleanor B. Merrill, executive director, Dr. Franklin M. Foote, medical director, Mr. Charles P. Tolman, consulting engineer, as well as Mrs. Boyce, took part in the meetings of the American Academy of Ophthalmology and Otolaryngology, in Chicago. Two exhibits were maintained—one, "Early Recognition of Glaucoma Saves Sight," and the other, "Essential Sight Conservation Services in the Community." The latter exhibit was also displayed among the scientific exhibits at the meeting of the American Public Health Association in Cleveland, Ohio, in which both Dr. Foote and Mrs. Winifred Hathaway, associate director, participated. Among other activities, Mrs. Hathaway gave a demonstration of recent vision-testing equipment.

Current Articles of Interest

Nutritional Status of Aircraft Workers in Southern California. A Conspectus of the Survey and its Field, Henry Borsook and Dorothy G. Wiehl, *The Milbank Memorial Fund Quarterly*, July, 1946, published by the Milbank Memorial Fund, 40 Wall Street, New York 5, New York.

In this Study of the Nutritional Status of Aircraft Workers in Southern California, the authors sought evidences of vitamin A deficiency in (a) conjunctival opacity, thickening, and elevations, and in (b) the frequency of follicular hyperkeratosis. The results of the therapeutic tests showed that the changes in rating were not consistent in any one individual among the subjects of the vitamin or placebo groups, and that administration of 50,000 international units of vitamin A, five days per week, for nine to twelve months did not produce marked improvement in most of the subjects. Possibly, however, a more prolonged period of therapy or larger doses may effect more complete reversal of conjunctival thickening and opacity than was observed in this study. The study provides no data on whether any level of vitamin A intake maintained all through life will prevent or retard the conditions studied. The results of the therapeutic test for evidence of riboflavin deficiency in corneal vascularity were also negative.

What is Orthoptics? Walter B. Lancaster, M.D., *Journal of the American Medical Association*, February 16, 1946, published weekly by the American Medical Association, 535 North Dearborn Street, Chicago 10, Illinois.

The author presents a study of orthoptics and orthoptic training and its relation to defective habits of seeing, defects of binocular vision and defects of ocular motility. The article has incorporated the suggestions and criticism of the Consultants on Ophthalmic Devices and the American Orthoptic Council and has been adopted by the Council on Physical Medicine.

A Visual Test for Infants, John N. Evans, M.D., *American Journal of Ophthalmology*, January, 1946, published monthly by

the Ophthalmic Publishing Company, 837 Carew Tower, Cincinnati, Ohio.

The author has devised a test for infants in which small black objects are moved on a white surface, by the use of a magnet under the tray. This excludes the examiner's hand from the field of vision. Different sizes of iron filings (the black objects) are used, which are supplemented by steel ball bearings in graduated sizes, when larger objects are desired. When the infant visualizes the filings, he endeavors to follow their movements. In cases, as congenital cataract, where the child does not respond to even the largest ball bearing, the ophthalmoscope with its mounted pin-hole cap may be applied to the translucent tray bottom, on its underside. The child's responses are then noted, as this light disk is moved about on the surface of the tray. The dependability of the test may be indicated by the fact that when an amblyopic eye is covered, it does not interfere with the child's interest and visualization of the moving objects, but when the good eye is covered, the infant immediately attempts to remove the interference in order to pursue the minute specks. These tests may be valuable not so much for measuring visual acuity as for indicating the responses of the child to brightness, contrast, and movement.

Graduate Training in Ophthalmology, Harry S. Gradle, M.D., *American Journal of Ophthalmology,* January, 1946, published monthly by the Ophthalmic Publishing Company, 837 Carew Tower, Cincinnati, Ohio.

A plan for graduate training in ophthalmology is presented. This includes university instruction and special internships and residencies. The University of Illinois has adopted this plan, which will go into effect as soon as members of the ophthalmic staff are released from military duty. It is to be earnestly hoped that the American Board of Ophthalmology will approve it, so that it may be accepted by the various teaching institutions as adequate, formalized training will supply this country with the number of ophthalmologists it needs.

Book Reviews

PSYCHOLOGY FOR THE ARMED SERVICES. Edited by Edwin G. Boring. The National Research Council. Washington: The Infantry Journal, 1945. 533 p. ill.

Despite advances in technology and nuclear physics, wars still are fought by people. Germany in the 1920's developed the idea of total war; later the Nazis took over this concept and established a Psychological General Staff under the Ministry of Propaganda and the Secret Police. The United States made its most important use of psychology in the selection and placement of men in the armed forces, in carrying on research in such military problems as vision, and in the Army Division of Information and Education which was concerned with morale. Russia furthered research in psychological problems of perception and observation important in warfare.

This book provides an understanding of how man's mind functions, with good chapters on motivation, personal adjustment, sex, leadership, rumor, panic, and mobs. There is a chapter on the eye as an instrument of perception and another on visual adaptation and night vision. These two chapters provide, in general, an excellent forty-page summary of eye physiology. It is clear, however, that the discussion of visual acuity on page 27 was not reviewed carefully. Visual efficiency with 20/30 vision is 91.5 per cent, not "⅔ normal," and with 20/40 vision is 83.6 per cent, not "½ normal."

The typography is excellent but could be improved by wider margins and shorter lines. The book is printed on paper with a somewhat glossy finish which makes one conscious of glare. It is indeed unfortunate that a book of such otherwise high quality should have these limitations.

FRANKLIN M. FOOTE, M.D.

SCIENTIFIC INSTRUMENTS. Edited by Herbert J. Cooper. New York: Chemical Publishing Company, 1946. 305 p. ill.

The book classifies instruments designed for physical measurements into five main divisions, i.e., optical, measuring, navigational and surveying, liquid testing, and miscellaneous. The eye specialist, however, need not confine himself to the chapters on his specialty, as much useful information in other sections may apply to his field as well. The book is profusely illustrated with diagrams and photographs.

Contributors to This Issue

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